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Arkansas Academy of Science Proceedings, Vol. 22, 1968

P R O G R A M

ARKANSAS ACADEMY OF SCIENCE

Fifty-Second Annual Meeting

**Ouachita Baptist University and Henderson State College
Arkadelphia, Arkansas**

Friday, April 5

Ouachita Baptist University

9:00 a.m. to 4:00 p.m.	REGISTRATION — Senior and Collegiate Academy
9:00 a.m. to 12:00 noon	REGISTRATION — Junior Academy
9:15 a.m. to 10:00 a.m.	COLLEGIATE ACADEMY — Executive Committee Meeting
9:30 a.m.	SENIOR ACADEMY — Executive Committee Meeting
10:00 a.m. to 10:50 a.m.	COLLEGIATE ACADEMY AND JUNIOR ACADEMY — Address: "The Effect of Engineering Development on River Systems" — Dr. Joe Nix, Chemistry Department, Ouachita Baptist University
10:45 a.m.	SENIOR ACADEMY — Business Meeting
11:00 a.m.	JUNIOR ACADEMY — Mixer
11:00 a.m. to 11:45 a.m.	COLLEGIATE ACADEMY — Business Meeting
11:40 a.m. to 1:00 p.m.	LUNCHEON — Science Fair Judges
12:00 noon to 1:15 p.m.	LUNCHEON — Collegiate Academy of Science
1:15 p.m. to 4:00 p.m.	COLLEGIATE ACADEMY — Presentation of papers
1:30 p.m. to 2:30 p.m.	JUNIOR ACADEMY — Business Meeting
2:30 p.m. to 3:30 p.m.	JUNIOR ACADEMY PAPERS
3:45 p.m. to 5:00 p.m.	SCIENCE EDUCATION SECTION

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4:00 p.m. to	SCIENCE FAIR
5:30 p.m.	
6:30 p.m. to	BANQUET — Combined Academies
7:45 p.m.	
7:45 p.m. to	SCIENCE FAIR AWARDS
8:40 p.m.	
7:00 p.m. to	SCIENCE FAIR
10:30 p.m.	
8:45 p.m. to	SENIOR ACADEMY — Address: "Remote Sensing of Environment" — Dr. Joseph Lintz, Jr., Mackay School of Mines, University of Nevada.
9:45 p.m.	

Saturday, April 6

8:00 a.m. to	SCIENCE FAIR — open to the public — Walton Gymnasium
11:30 a.m.	
8:00 a.m. to	JUNIOR ACADEMY — Tour of Local Industry — Reynolds Metal Company
10:00 a.m.	

Saturday, April 6

Henderson State College

7:30 a.m. to	BREAKFAST — Arkansas Science Teachers Association
9:00 a.m.	
8:00 a.m. to	REGISTRATION
10:00 a.m.	
8:30 a.m. to	VISITING SCIENTIST — Conference for "Visiting Scientists"
9:30 a.m.	
9:00 a.m. to	SCIENCE TALENT SEARCH PROGRAM
10:00 a.m.	
10:00 a.m. to	SECTION MEETINGS — Senior Academy
12:00 noon	
12:00 noon to	LUNCH HOUR
1:00 p.m.	
1:00 p.m. to	BUSINESS MEETING — Senior Academy
2:00 p.m.	
2:00 p.m. to	SECTION MEETINGS — Senior Academy
4:00 p.m.	

SECTIONAL PROGRAM

ARKANSAS JUNIOR ACADEMY OF SCIENCE

PRESIDENT: Bill Adams
Benton, Arkansas

- "A Comparison of Plant Communities and Physical Environments in the Lake Weddington Area — Fayetteville, Arkansas," by Tom Hecox.
- "Nutritional Studies of *Escherichia Coli* Using Radioactive Tracers," by Connie Sue Haisty.
- "Dermatoglyphics: A New Medical Clue in Mongolism," by Michael Roe.
- "The Effect of Centrifugation of Pea Seeds at 30, 60, and 90 Minute Intervals," by Larry Baker.
- "New Potential for Ultraviolet Radiation," by Brude Proctor.
- "Precipitation and Short Leaf Pine Growth," by Gregory Ferguson.
- "The Effect of Light Changes on Mice," by Charlotte Atchley.
- "Transmission of Radio Signals Underwater," by Joe Carver.
- "Direct Current Arcing," by Joey Jones.
- "Pythagorean Triplets," by Ron Napier.
- "Calculating the Orbit of a Satellite," by Leon Blue.
- "Factors Influencing the Falcianic Reaction," by Wayne Robertson.
- "A Study of Entropy and the Second Law of Thermodynamics," by Martha Adams.
- "The Effects of Radiation on Mice," by Jeri Ann Stevens.
- "The Chemistry of Digestion," by Cindy Isbell.
- "The Effects of Ultra Low Pressure on Body Functions," by Keith Jones.
- "Comparative Study on the Effect of Color on the Memory of Elementary Children," by Randy Auman.

COLLEGIATE ACADEMY OF SCIENCE

PRESIDENT: Curtis Barton
University of Arkansas

- "On Factorization of Primes in Quadratic Extension Fields," by Curtis Barton.

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- "Taxonomic Studies with a Species of *Achromobacter*," by Harold Betton.
- "The Origin of Manganese in the Water Supply of Greers Ferry National Fish Hatchery," by Jim Larkin.
- "Physiology of Red Pigment Production Following Wounding of Imbibed *Xanthium* Seeds," by James Dodson.
- "The Extraction of Trace Metals with Diethyldithiocarbamate," by Tom Goodwin.
- "Synthesis of and Preliminary Antibacterial Studies on some para-Substituted 2-Pyridyl Acetophenones," by Wayne W. Daily and James Frederick.
- "Chronopotentiometric Behavior of Bismuth in Hydrochloric Acid," by Cynthia E. Wilson.
- "Identification of and a Postulated Mechanism for the Formation of 2-(1-Indanylidene)-1-indanone During the Polyphosphoric Acid Catalyzed Synthesis of 1-indanone from Hydrocinnamic Acid," by William Dempsey.
- "Anthocyanin Formation in Achlorophyllous Leaf Tissue of Exogenous Carbohydrate Feeding," by Frank Holder.

SCIENCE EDUCATION SECTION

CHAIRMAN: Harlan McMillan
College of the Ozarks

- "Science — A Process Approach," by Denver Prince.
- Analytical Chemistry — What Now? Report on a symposium held at Louisiana State University in January, by Alex Nisbet.
- The Undergraduate Research Program in Chemistry at Ouachita Baptist University. Wilbur W. Everett.

ARCHEOLOGY SECTION

CHAIRMAN: James A. Scholtz
Henderson State College

- "The Study of Arkansas Archeology," by Hester A. Davis.
- "The Role of the Amateur in Arkansas Archeology," by Charles Figley, Jr.
- "Prehistoric Development in Southwest Arkansas," by Michael P. Hoffman.

- "Culture History in Southwest Arkansas," by Burney B. McClurkan.
 "Introducing Northeastern Arkansas Prehistory," by Dan F. Morse.
 "A Summary of Prehistory in Northwest Arkansas," by James A. Scholtz.

BIOLOGY AND AGRICULTURE SECTION I

Zoology

CHAIRMAN: Elizabeth Brinkley
 Presiding: Adelpia Basford
 Henderson State College

- "A Survey of Albino Birds in Arkansas," by Earl L. Hanebrink.
 "The Satyrs and Wood Nymphs of Arkansas," by E. P. Rouse.
 "A Preliminary Study of the Spiders of Clark County Arkansas Compared with a Five Year Study of Mississippi Spiders," by Peggy R. Dorris.
 "Maturity and Spawning Periodicity of the Gizzard Shad, *Dorosoma cepedianum* (Lesueur), in Beaver Reservoir," by Raymond E. Baglin, Jr. and Raj. V. Kilambi.
 "Age and Growth of the Longear Sunfish *Lepomis megalotis* (Rafinesque) in Arkansas Waters," by Edmond J. Bacon and Raj V. Kilambi.

BIOLOGY AND AGRICULTURE SECTION II

Botany

CHAIRMAN: Elizabeth Brinkley
 Henderson State College

- "The Enigma of *Penstemon tenuis* Small (Scrophulariaceae)," by Aileen L. McWilliam.
 "*Coreopsis saxicola* Alex. Var. *duncanii* Sherff (Compositae) in Arkansas," by Edwin B. Smith.
 "Mitochondria in Living Fungal Cells," by George G. Smith.
 "Spherosomes in Living Fungal Cells," by Vivien N. Armentrout.
 "Microirradiation of *Basidiobolus ranarum* with a TRG Biolaser," by John L. Robertson and Charles L. Wilson.

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- "Translocation of tobacco ringspot virus in zinnia roots," by Billy J. Moore and J. M. McGuire.
- "Plastid Transformations in Ripening Solanaceous Fruits," by William M. Harris.
- "Purification of Soybean mosaic virus," by Wayne Horn and H. J. Walters.
- "Procedure for Assay of Nanomolar Amounts of ATP," by P. L. Wickliff.
- "Modification of Etiolated Growth of Corn Seedlings by Red Light," by Steven O. Duke.
- "Tentoxin from *Alternaria tenuis* is a cyclic tetrapeptide," by G. E. Templeton.
- "Report on the Gramineae of the Arkansas Springfield Plateau," by Albert Robinson, Jr. and Dwight M. Moore.

CHEMISTRY SECTION

CHAIRMAN: Wilbur W. Everett
Ouachita Baptist University

- "The Synthesis and Solvolysis of *p*-bromobenzenesulfonate Esters of 2-Hydroxy-5-Keto Bicyclo [2.2.1] Heptane," by Joe C. Greever.
- "Studies of Thermal Decompositions using Differential Scanning Calorimetry," by Paul D. Gwinup.
- "An Extraction Concentration Method for the Atomic Absorption Determination of Iron, Manganese, Copper, Nickel, Lead, Zinc, and Chromium," by Joe Nix.
- "Heterocyclic Aromatic Fluorides by a Modified Shieman Method," by Frank L. Setliff.
- "Oxygen Exchange in *p*-Methylbenzophenone at Low Acid and Low Base Concentration," by Willoughby F. Meek and Arthur Fry.
- "Chronopotentiometric Behavior of Mercury (I) and Mercury (II) in Perchloric Acid," by Alex R. Nisbet.
- "Methyl Rearrangements in the π -Bromination of α -Bromocamphor," by Walter L. Meyer, A. P. Lobo, and R. N. McCarty.
- "The Acid-Catalysed Rearrangement of Phenyl and Carbonyl Labeled Phenyl Benzhydryl Ketone," by Thomas E. Clark and Arthur Fry.

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- "Mathematics of the Vosburgh-Cooper and Mole Ratio Methods of Complex Determination," by James O. Wear.
- "The Specific Conductance of Concentrated Solutions of Magnesium Chloride in the Water-Ethanol System," by A. Than and E. S. Amis.
- "Kinetics of the Cu(II) Ion Induced Dimerization of Bovine Plasma Albumin," by W. W. Everett, Charles H. Wilson, Hoy Speer, Len Blaylock, Joe Porter, and Dick Ewing.

GEOLOGY SECTION

CHAIRMAN: William M. Caplon
Arkansas Geological Commission

Papers read by title only:

- Proetid Trilobite From The Boone Formation in Arkansas.
- A Trilobite From Lower Ordovician Rocks in Arkansas.
- Osagean Trilobites In Arkansas.
- "Geology of the Blanchard Springs Area," by Don E. Williams.
- "Functions and Procedures of the Arkansas Oil and Gas Commission," by William E. Wright.
- "Multiple Porosity Techniques to Define Lithology," by Russell O. Brown.
- "The Engineering Application of Ground Water Studies in the Lower Arkansas River Valley," by Benny Swafford.
- "Hydrogeochemical Prospecting," by Charles T. Bryant.
- "Geologic Factors Affecting Floods in Arkansas," by John N. Sullavan.
- "Landslide Correction in Highway Construction," by Joe D. Magness.
- "Geology of the Wilson Springs Vanadium Deposits," by J. S. Hollingsworth.

PHYSICS SECTION

CHAIRMAN: Clark W. McCarty
Ouachita Baptist University

- "The Design of an Instrument to Measure Absorption and Velocity Dispersion of Sound in Gases at High Temperature," by Gary Strain.

"Magnetic Quantum Numbers and Crystal Symmetries," by H. Tieding and O. Plummer.

"X-Ray Diffraction Study of Liquid Chloroform," by J. Hendren, W. Yancy, and G. Clayton.

"Thermostatic Cooling System for Liquid Studies," by C. Rogers and G. Clayton.

"A Kilocycle Sample Rotating System," by John Gray and M. Day.

"Relativistic Equilibrium Thermodynamics," by Charles J. Armentrout.

MATHEMATICS SECTION

CHAIRMAN: John R. Hodges
Little Rock University

"Least Squares Estimation with Inequality Constraints," by James E. Dunn.

"Sets with Transform Semigroups," by Naoki Kimura.